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Amendments to the Drawings:

The attached three sheets of formal drawings include no substantive changes to drawing Figs 1-6. The replacement sheets are merely placing the drawings in formal condition based upon the Examiner's comments in the Office Action. These three sheets, which include Figs. 1-6, replace the original sheets of informal drawings, which included Figs. 1-6.

Attachment: Replacement Sheets 1-3, which show Figs. 1-6.

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REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed on August 25, 2006. Claims 2-5, 9-10, 14-17, 26, 30, and 34-36 have been amended. Claims 41-46 have been added. Claims 1-46 are pending. Reconsideration of the above-identified application, in view of the above amendments and the following remarks, is respectfully requested.

The Drawings stand objected to because, according to the Examiner, they are faded in some parts and contain copy machine marks. To expedite prosecution, Applicant's have prepared formal drawings, to replace the originally filed drawings, which are attached to this Amendment. No new matter has been added.

Claims 1-5, 15-17, 21, 24, and 38-40 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,585,677 to Cowan, Jr. et al. The Examiner maintains that Cowan discloses a shunt with catheters 28, 34, a master control unit 24 that comprises a valve-gauge assembly 52 with pressure gauges or sensors, a valve to control fluid flow, and a microprocessor that receives and interprets inputs from the pressure gauges to control the valve and fluid flow.

Claims 6-14, 18-20, 22-23 and 25-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cowan. The Examiner maintains that it would have been obvious to add a third and fourth pressure sensor to Cowan's device. The Examiner also concludes that it would have been obvious to place the CPU inside or outside of the housing. Finally, the Examiner concludes that it would have been obvious to combine Cowan's pressure sensors into a differential pressure sensor.

These rejections are respectfully traversed. All of the independent claims of the present invention recite that the first and second pressure sensors are disposed within the housing along with the valve, or they recite that a differential pressure sensor is disposed in the housing with the valve. This is structure that is neither taught nor suggested by Cowan. Referring to Figs. 1 and 2 of Cowan, and the corresponding disclosure, the only housing illustrated and described is the master control unit 24. A valve gauge assembly 52, 52a is disclosed as being housed within the master control unit 24 (see, for example, col. 5, lines 12-13). Valve gauge assembly 52, 52a is disclosed as including a pressure gauge and a valve. Cowan does not disclose, however, if this pressure gauge is disclosed upstream or downstream with respect to the valve. Cowan also discloses that a ventricular gauge 54 is located proximal to the ventricular catheter 32 and is connected to the portion of assembly 52 housed within master control unit 24 via a control line 56. Thus, Cowan makes it abundantly clear that ventricular gauge 54 is disposed outside of the master control unit housing 24. Cowan also teaches that a control line 56 is used to connect gauge 54 and master control unit 24. Therefore, Cowan teaches away from including a second pressure sensor with the housing of master control unit 24. Accordingly, the present invention is neither taught nor suggested by Cowan.

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The Examiner states that the claims recite limitations drawn to the mode of operation of the controller. The Examiner maintains that these are recitations of intended use and are therefore not limitations of the claims. By the above amendments, Applicant has changed these limitations to be means plus function clauses. As such, the prior art relied upon by the Examiner must include structure that performs the recited function to anticipate the claimed invention. The Examiner has admitted that Cowan fails to disclose that the microprocessor disclosed in Cowan performs the claim limitations. The Examiner does state that Cowan's device "may be programmed to perform the operations claimed by applicant", but this is based on pure speculation and the use of hindsight by the Examiner. For example, claims 3 and 4 recite that the CPU has means for calculating a differential pressure between the first pressure sensor and the second pressure sensor. There is no teaching or suggestion in Cowan for the processor to calculate a differential pressure between the two gauges. In fact, in the first paragraph at the top of column 6, Cowan states that the processing units of the valve-gauge assembly 52 and the diagnostic unit 60 are both connected to a transmitter 64, which emits that information to an external computing device. Cowan stresses that to reduce battery consumption, transmitter 64 emits as a low power level, and the external computing device uses the information to either automatically diagnose any malfunction or infection, and/or simply pass along the data to the patient's doctor for review and analyses. Thus, because Cowan is concerned about preserving battery life, Cowan actually teaches away from having the internal processor perform additional programs. Applicant's also note that Cowan includes no teaching whatsoever that the internal processor can be powered non-invasively.

The Examiner also concludes that it would have been obvious to add a third and fourth pressure sensor to Cowan's device because to do so is a mere duplication of the essential working parts of a device. Applicant respectfully disagrees. Applicant has strategically placed the third and fourth pressure sensors at the distal ends of the inlet catheter and the outlet catheter. Thus, because of the placement of these additional pressure sensors, the present invention permits the doctor to non-invasively determine the source of malfunction of the shunt to a much greater degree of certainty. Thus, adding a third and fourth pressure sensor is not merely duplicating parts as the Examiner suggests.

Finally, the Examiner concludes that it would have been obvious to combine Cowan's pressure sensors into a differential pressure sensor because such a sensor involves combining discrete units into a differential pressure sensor, and it has been held that forming in one piece an article that has formerly been formed in multiple pieces and put together involves only routine skill in the art. Applicant respectfully disagrees. The Examiner's logic makes no sense. The Examiner's logic might make sense if Applicant claimed a pressure sensor that was made of one piece, and the prior art showed a pressure sensor that was made of two pieces. But in Cowan, the two pressure sensors are located a distant apart from one another. One is inside the master control unit housing and one is outside of the housing. Applicant fails to see how these two spaced apart pressure sensors can be combined into one differential pressure sensor that is located within the housing without the use of hindsight. Such a modification of Cowan's device does not involve just routine skill, and would not have been obvious to one of ordinary skill in the art.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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APPENDIX

Attached hereto are replacement sheets 1-3, which illustrate Figs. 1-6 as formal drawings.